REMARKS

Claims 1-5, and 7-14 are pending, of which claims 1 and 7 have been amended to further define the present invention. New claims 15 and 16 have been added. Claims 1-5, and 7-14 were rejected under 35 U.S.C. 103(a). No new matter adds through the amendments. For the reasons discussed below, withdrawal of the rejections is requested.

Claim Rejections- under 35 U.S.C. 103(a):

Claims 1, 5-7 and 11-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lach et al. (6,108,212).

Applicant has amended independent claims 1 and 7. Claims 1 and 7, as amended, specify that *the first mounting pads are disposed at a peripheral region of the substrate and surround all of the second mounting pads*. Lach et al clearly fail to teach or suggest such features.

The advantages of such special arrangement of the first and second mounting pads are fully discussed in the specification and in previously filed responses.

For at least the reasons discussed above, claims 1 and 7 as well as their dependent claims 5, 6, and 11-13 are patentable over Lach et al.

Claims 2-4, 8-10 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lach et al. (6,108,212) in view of Admitted Prior Art (APA).

The APA clearly cannot cure the deficiencies of Lach et al. as discussed above. Therefore, claims 1 and 7 are patentable over Lach and APA. Claims 2-4, 8-10 and 14 depend from claims 1 and 7, respectively, and for at least the same reasons discussed above in connection with claims 1 and 7, they are also patentable over Lach and APA.

Claims 4 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lach et al. (6,108,212) and APA and further in view of Katchmar.

Katchmar clearly cannot cure the deficiencies of Lach et al. and APA as discussed above. Therefore, claims 1 and 7 are patentable over Lach, APA, Katchmar. Claims 4 and 10 depend from claims 1 and 7, respectively, and for at least the same reasons discussed above in connection with claims 1 and 7, they are also patentable over Lach, APA, and Katchmar.

In addition, claims 4 and 10 recite that the pitch of the first mounting pads is smaller than the pitch of the second mounting pads. This feature combined with the special arrangement of the

first and second mounting pads as defined in claims 1 and 7 serves an intended purpose, which is not taught by the prior art.

New Claims

New claims 15 and 16 specify that the solder mask is in direct contact with the sidewall and a portion of the top surface of the first mounting pads. While Lach requires to form a resistive volume 36 surrounding the pads 27 and the solder mask 42 is not in direct contact with the sidewall of pads 27 (Fig. 1).

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that all pending claims 1-5 and 7-16 are patentable over the cited prior art. Allowance of this application is earnestly solicited.

Respectively submitted

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Version with Markings to Show the Changes Made

In the Claims:

Claims 1 and 7 have been amended as follows:

1. (Third time amended) A substrate structure of Flip Chip package comprising:

a plurality of patterned circuit layers;

at least an insulative layer stacked between the patterned circuit layers for isolating the patterned circuit layers, [and] wherein the patterned circuit layers are electrically connected one another, and one of the patterned circuit layers is positioned on the surface of the substrate of the flip chip package as a top patterned circuit layer, and the top patterned circuit layer comprises at least a plurality of first mounting pads and a plurality of second mounting pads; and

a solder mask layer covering the patterned circuit layer on the surface of the substrate of the flip chip package, the solder mask layer partially covering a first top surface of the first mounting pad while entirely exposing a second top surface of the second mounting pads, wherein the first mounting pads are disposed at a peripheral region of the substrate and the second mounting pads are disposed at a central region of the substrate, and the first mounting pads surround all of the second mounting pads.

7. (Third time amended) A substrate structure of Flip Chip package comprising:

a plurality of patterned circuit layers;

at least an insulative layer stacked between the patterned circuit layers for isolating the patterned circuit layers, [and] wherein the patterned circuit layers are electrically connected one another, and one of the patterned circuit layers is positioned on the surface of the substrate of the flip chip package as a top patterned circuit layer, and the top patterned circuit layer comprises at

least a plurality of first mounting pads and a plurality of second mounting pads;

a solder mask layer covering the patterned circuit layer on the surface of the substrate of the flip chip package, the solder mask layer partially covering a first top surface of the first mounting pads while entirely exposing a second top surface and sidewalls of the second mounting pads, wherein the first mounting pads are formed at a peripheral region of the substrate and surround all of the second mounting pads;

a chip having an active surface with a plurality of bumps disposed thereon wherein the chip has its active surface [face] facing to the surface of the substrate of the flip chip package, and the bumps are electrically connected to their corresponding first bonding pads and second bonding pads respectively; and

an underfill material filling between the active surface of the chip and the top surface of the substrate of the flip chip package.

New claims 15 and 16 have added.